Review of Basic Skills Education Program (BSEP) I and II

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>This report evaluates the Army's Basic Skills Education Program as it was implemented from FY 78 to FY 82. Results show that there is a genuine need for the program, that it improves skills and results in lower attrition rates and slightly higher pay grades. However, many soldiers leave the program without meeting criterion test scores. In addition, existing data bases covering the Program need to be integrated and monitored for accuracy and completeness.

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The Curriculum and Evaluation Team in the Instructional Technology Systems Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences performs evaluation and curriculum development applicable to military education and training. A major focus of this research is the development of information on which the Department of the Army can base decisions about its Basic Skills Education Program.

This report evaluates the Army's Basic Skills Education Program as it was implemented from FY 78 to FY 82. Results show that there is a genuine need for the program, that it improves skills and results in lower attrition rates and slightly higher pay grades. However, many soldiers leave the program without meeting criterion test scores. In addition, existing data bases covering the Program need to be integrated and monitored for accuracy and completeness.

This research effort was supported by the Office of the Adjutant General and the Training and Doctrine Command.

EDGAR M. JOHNSON
Technical Director

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REVIEW OF BASIC SKILLS EDUCATION PROGRAM (BSEP) I AND II

<u>EXECUTIVE SUMMARY</u>

Requirement:

The Department of the Army has a need for information on which to base decisions about the future of its Basic Skills Education Program.

Procedure:

Two major efforts were made to evaluate the Basic Skills Education Program:

1. Analysis of archival data, and
2. Field investigations.

Findings:

There is a genuine need for the Program. It improves soldiers' basic skills and results in lower attrition rates and slightly higher pay grades. However, many soldiers leave the Program without meeting criterion test scores. In addition, existing data bases covering participants' records need to be integrated and monitored for accuracy and completeness.

Utilization of Findings:

The Department of the Army can use these findings to guide future decisions concerning the Basic Skills Education Program.

REVIEW OF BASIC SKILLS EDUCATION PROGRAM (BSEP) I AND II

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INTRODUCTION

The Army's Basic Skills Education Program (BSEP) is a large undertaking. It is difficult to determine precisely how large it is since figures maintained by different agencies do not always agree. The data reported to the Army Continuing Education System (ACES) on DA Form 1821-R provide reasonably complete accountings for the past several years. For FY 80 and 81, the ACES data show BSEP I individual enrollments of 15,984 and 15,662 respectively. For the same two years, individual enrollments in BSEP II are shown as 64,643 and 73,263.

While the term BSEP I is sometimes used to describe any type of remedial skills training designed for soldiers who test out at less than grade level 5 on basic verbal and numerical skills, in this report BSEP I designates those programs implemented in the training base either prior to or concurrent with Basic Combat Training (BCT), Advanced Individual Training (AIT), or One Station Unit Training (OSUT). Such programs include both general literacy programs and English-as-a-Second Language (ESL) programs. BSEP II programs involve soldiers assigned to permanent duty stations within FORSCOM, TRADOC, and other Major Commands (MACOMS). The literacy component is dominant, accounting for 80% of BSEP I enrollments and 95% of BSEP II enrollments.

Both BSEP I and BSEP II are decentralized. The programs are monitored by Education Service Officers (ESOs); instruction is provided by contract teachers who may have individual contracts with the local installation or may be employed by an institution that has contracted to provide instructional services for one or more installations. Both BSEP I and II are variable and heterogeneous programs. Neither has had a standardized curriculum; each school or contractor has selected its own syllabus, materials, lesson plans and instructional approach. The closest approaches to standardized curricula have occurred when institutional contractors have been responsible for operating programs at multiple installations (Big Bend Community College/Temple University in Germany or Central Texas Union Junior College within FORSCOM) and in the ESL component of BSEP I, where the American Language Course (ALC) developed by the Defense Language Institute (DLI) has been used in some form by nearly all contractors. Even in this case, there is significant variation across training sites; local modifications have produced highly variable applications of the ALC. A standardized ESL program developed for TRADOC by DLI is now being introduced, and developmental work is underway for a standardized set of modules to be used in functionally oriented BSEP II programs. But for the period covered by this report, FY79 to FY82, both BSEP I and II are to be regarded as labels for a set of instructional projects. In a strict sense, neither can be regarded as a program.

Contract MDA 903-81-C-AA04 between the U.S. Army Research Institute (ARI) and the American Institutes for Research (AIR) calls for a review of the existing BSEP. The review should be based on observations, interviews, existing literature and on analyses and re-analyses of archival data. Some of the Task 1 effort was accelerated in response to changes in emphasis within the BSEP programs: ESL received far more attention in the first two contract years than had been planned, and literacy programs received less. The major consequence is that some Task 1 results were published prior to this report (Holland, Rosenbaum and Stoddart, 1982a, 1982b; Krug and Wise, 1982). The purpose of this report is to (1) describe the activities that were undertaken, (2) summarize the findings, and (3) present the tabular documentation that support the findings.

THE BSEP CONCEPT

The program is defined and established in AR621-5 of 15 October 1981, from which the following excerpts are taken.

- The program is designed to develop educational competencies required for a soldier's job performance, skill qualifications, and career growth. (Section 2-1.)

- BSEP will develop job-related educational skills from soldier's entry into active service through completion of the Advanced Course, NCOES. Formal entry into BSEP is a commander's decision, made after coordination with the ACES ESO and discussion with the soldier. One main thing to consider in selecting participants should be that soldiers are willing to learn and use this knowledge productively in the Army. _The purpose of this effort is to fulfill the Army's obligation to provide a fully functional education._ Section 2-4, italics added.)

- TRADOC will conduct BSEP I during initial entry training; BSEP I ends once a soldier earns an MOS. This phase of BSEP provides soldiers basic literacy instruction in reading and arithmetic to form a basis for MOS training. The instruction will be given prior to or during advanced individual training (AIT) or at any point during the One Station Unit Training (OSUT) cycle. ESL instruction also is provided to soldiers who need it. Normally, ESL is given prior to basic training (BT) or to OSUT but may be initiated at any phase of initial entry training when test results or commander evaluation of performance indicates a need. Troop commanders in the training base may refer any soldiers who might have to be released due to reading, writing, speaking, listening, or computing trouble to the AEC staff for special counseling and entry into BSEP I literacy or ESL instruction. Soldiers who score below a raw score of 19 in verbal and numerical concepts on the Select Adult Basic Learning Examination (SelectABLE) or below a score of 70 on the English Comprehension Level Test (ECLT) will be considered first for BSEP I. Soldiers who score between 19 and 26 on the SelectABLE will also be reported to the commander as potential eligibles for literacy instruction. (Section 2-4(a).)

- BSEP II provides soldiers instruction in reading, writing, speaking, listening, and computing skills needed for them to perform military duties through grade E5. This instruction will be oriented to the job being performed and will include military life-coping skills and learning strategies. The Test of Adult Basic Education (TABE) will be used as a basis to place members in proper levels and measure their educational achievement after instruction. Instruction will be geared to raise literacy skills to at least the ninth-grade level as measured by the TABE and to raise English language comprehension to a score of 70 on the ECLT. Soldiers are normally identified as potentially eligible for BSEP II instruction in one of the following three ways:

  (1) <u>Referrals based on GT scores</u>. During inprocessing at permanent duty stations, soldiers who have a GT score of less than 90 will be referred within 30 days.

  (2) <u>Unit commander referrals</u>. These are based on supervisors' assessments or on voluntary requests by soldiers.

  (3) <u>SQT referrals</u>. Those who score less than the minimum required for MOS verification on SQTs as reported on the individual soldier's report (ISR). Soldiers whose retention is in the best interests of the Army will be considered first. (Section 2-4(b).)

In simplest form, the rationale that underlies the Basic Skills Education Program that is defined in AR 621-5 has the following elements.

1. Some enlistees lack sufficient skills in reading, writing, speaking, listening, and/or computing, to perform effectively in their assigned duty positions.

2. These deficiencies are remediable; if enlistees are motivated to learn, they can be taught the skills necessary for effective job performance.

3. BSEP is the vehicle that will provide the necessary remediation.

Until the Summer of 1981, all new enlisted accessions were administered the SelectABLE or, if they were non-native speakers of English, the ECLT. The scores were used to determine BSEP eligibility, as specified in AR 621-5. The ABLE IA battery was given to further diagnose soldier deficiencies prior to instruction. The ABLE IB or IIA batteries were used to measure proficiency during and at the end of BSEP I training. These scores were reported to TRADOC on DA Form 1821-2-R, 1 October 1978 and DA Form 1821-2-R, 1 April 1980 for inclusion in a computer data base for purposes of program evaluation. The mandatory testing was eliminated in the Summer of 1981 and installation commanders now have discretionary control over BSEP I testing and training programs on their installation. BSEP I eligibility ends when a soldier earns an MOS.

BSEP II is conducted at installations in all major commands; it is intended for soldiers serving at permanent duty stations in MOS positions at skill levels 1 and 2. This phase of BSEP provides instruction in the reading, writing, speaking, listening, and computing skills needed to perform military duties through grade E5. Soldiers are identified as eligible for BSEP II in one of the following ways. Soldiers who are identified during inprocessing at permanent duty stations as having GT scores of less than 90 should be referred to Army Education Center (AEC) counselors for possible inclusion in BSEP II. In actual practice, some installations set the GT lower boundary at 95 or 100. Soldiers who score lower on the SQT than the minimum

required for MOS verification are also to be referred as BSEP II
eligibles. Many installations refer soldiers who are preparing
for an upcoming SQT even though they have not taken or failed an
SQT. Recent changes in the SQT procedures may affect this source
of BSEP II candidates. Unit commander referrals is another
source of BSEP II candidates. Such referrals include soldiers
who request and are approved by their commanders for
participation in BSEP II programs, as well as those whose unit
commanders believe are in need of, and will benefit from such
programs. All referrals to AEC counselors are now tested with
the Test of Adult Basic Education (TABE) to determine proper
placement in the program and to measure their general educational
achievement after instruction. (Formerly, the Adult Basic
Learning Examination (ABLE) battery was used for these purposes
except in USAREUR where the TABE was used from the outset.)

PROCEDURES

Background

The intent of BSEP review activities was to provide a snapshot view of the overall BSEP as it existed prior to the planned implementation of revised components. From the standpoint of program evaluation, the snapshot was to serve two major purposes. First, it was to provide some initial indices of what benefits the Army had derived or was deriving from existing programs, and second, it was to provide baseline indices that could later be used for comparative evaluations of newly developed BSEP components.

In the review of procedures that follows, three emphases should be kept in mind. First, because several experimental efforts were underway, ESL received more attention than it otherwise would have. Second, the major command focus was on TRADOC; there were no site visits to other commands. Finally, more effort was devoted to BSEP I program components than to BSEP II. Review of BSEP II components was limited to review of documentation, BSEP II analyses of archival data, and visits to four BSEP II programs at TRADOC installations.

Review of General Literacy Programs

The review of existing general literacy programs relied much more heavily on documentation and upon analyses and re-analyses of archival data than on direct observations and interviews. The

initial activity involved a review of the general BSEP program as spelled out in AR 621-45 and updated in Chapter 2 of AR 621-5, Army Continuing Education System (ACES), 15 October 1981.

Documentation review. The earliest evaluation document reviewed was An Analysis of the USAREUR Basic Skills Education Program (BSEP) prepared by Headquarters USAREUR, ODCSOPS, ACES Division, 22 December 1978. This document concerned the BSEP being conducted at that time by Big Bend Community College (BBCC). It addressed the issues of the extent to which BSEP objectives were being achieved by program participants; the manner in which ACES personnel, BBCC staff members, and USAREUR commanders were performing their responsibilities; and whether or not there was a need to revise the implementing instructions for the program and/or the contract with BBCC. Numerous problems were identified and recommendations were made for suggested changes.

Another document concerning evaluation of early phases of the BSEP was TRADOC Evaluation - Basic Skills Education Program, Phase I, BSEP I, June 1980. As the title implies, this report dealt exclusively with the BSEP I program in the training base. In an effort to verify the conclusions of this early report, and to update results of the BSEP I program, the AIR staff ran analyses of archival data taken from the BSEP I TRADOC data base derived from data supplied on DA Form 1821-2-R. Comparisons were made between results from these analyses and those reported earlier by TRADOC.

The earliest documentation of the BSEP II program was an informal summary prepared by the Evaluation Branch of the Education Directorate, TAGO, entitled <u>Analysis of Test Results from the Army's Basic Skills Education Program (BSEP II): FY 1978 to FY 1980</u>. This summary reported the results of analyses of data supplied to TAGO on DA Form 1821-1-R concerning referral and participation rates, hours of instruction, pre- and post-test results on ABLE, gains in grade level attainment, reasons for termination from the program, changes in GT scores and G.E.D. scores.

<u>Field observations</u>. There was no systematic attempt to conduct on-site reviews of BSEP II literacy programs. Those programs that were observed by AIR staff were located at TRADOC installations that were being visited for some other project task. These fortuitous visits did, however, give the staff an opportunity to review some of the materials used, to see some classes in action, and to talk with members of the ACES instructional and administrative staff about the programs. On-site observations and interviews with staff of literacy programs were conducted at Ft. Knox, Ft. Gordon, Ft. Jackson, and Ft. Lee. No attempt was made to collect objective data during these visits.

Analyses of Archival Data

Procedures used in building longitudinal data files. The data on BSEP I and II eligibles and participants were supplied to AIR in five separate files. The BSEP I data were divided into two files, one for FY79 and 80 BSEP-eligibles (File IA) and one for FY81 eligibles (File IB). These data files were separate because of minor changes in the data coding forms beginning in FY81. The data from FY79 and FY80 were reported on DA Form 1821-2-R, dated 1 Oct. 1978 and the data for FY81 were reported on DA Form 1821-2-R, with a revision date of 1 April 1980. The data on BSEP II eligibles were similarly divided into pre-FY81 (File IIA) and post-FY81 files, (File IIB) although in this case the differences in format were more profound. Specifically, the FY81 data included pre and post TABE scores, where the earlier data included ABLE scores. The ABLE data were reported on DA Form 1821-1-R, 1 August 1978, while the TABE data were reported on DA Form 1821-1a, September 1980. A third BSEP II file, covering FY82 (File IIC), was received in the Spring of 1983. This file was identical to the FY81 BSEP II file in content and format.

To recapitulate, five files were available:

- IA = FY79 and 80 BSEP I eligibles
- IB = FY81 BSEP I eligibles
- IIA = FY79 and 80 BSEP II eligibles
- IIB = FY81 BSEP II eligibles
- IIC = FY82 BSEP II eligibles

The two BSEP I files were combined, making some adjustment for the minor differences in codes used in the AIT completion and discharge variables (AITOSUT & DISCHAR). The combined BSEP I file was later split into separate files, one for ESL eligibles and the other for Literacy program eligibles. Very different data were available for these two sets and there was virtually no overlap between the two. The ESL eligibles had ECLT scores but no ABLE scores, while the Literacy eligibles had ABLE scores but no ECLT scores. The three BSEP II files were kept separate because of the different test scores recorded and because the FY81 data and FY82 data were processed at different points in time.

The next step in creating a longitudinal data file was to create a file of SSNs for whom followup data would be sought. Some sampling was used to reduce the total number of cases to a more manageable number. For the BSEP I data files, cases with missing scores were eliminated. This reduced the number of BSEP I cases from 15,642 to 13,128. The BSEP IIA file contained 33,948 cases. After eliminating cases with missing scores, restricting the sample to those using form A of ABLE II in the pretest and form B in the posttest, and taking a 25% sample of the FORSCOM cases, a sample of 10,989 cases remained. For the BSEP IIB file, cases with different levels of the TABE or with the same form at the same level (pre and post) were eliminated reducing the total from 8,048 to 6,927. The BSEP IIC was smaller, containing 4,176 records. Eliminating duplicates produced 4,071 useable cases.

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The follow-up samples were combined into a single file and duplicates were eliminated. Cases in the special 6-month and 3-month DLI ESL courses were also merged in at this time. The resulting sample of SSNs was sent to the Defense Manpower Data Center (DMDC) in Monterey, where the SSNs were matched against the 1981 year-end Enlisted Master File (EMF) and against "Loss" files for 1976 through 1981. Information for matches to our list was pulled off into a file that was returned to us. We then merged the data in this file back into our original data files to create a longitudinal data file. The match rates varied for the different files from 60% for the BSEP I file to 86% for the BSEP IIB file.

The DMDC files do not include all of the variables on the EMF. In particular, SQT scores and Enlisted Evaluation Reports (EERs) are not available on the DMDC files. In order to obtain these scores, our list of SSNs was submitted to ARI personnel who matched against a version of the 1981 fiscal year-end EMF. This file was a 50% sample of the full file so that only half as many matches could be expected. The resulting data were merged back into our initial files.

Problems encountered in processing the data. A number of problems were encountered in processing the BSEP data files. So that other users may profit from our experience, we list these problems and, where applicable, document our approach to them. These problems fall into four general categories: form changes,

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data documentation, missing or erroneous values, and duplicate records.

Form changes. For both the BSEP I and BSEP II data files, there were significant changes in the data coding forms beginning in FY81. This meant that many fields were available for one year but not another (e.g. MENTCAT was available only for FY79 & 80). The most profound difference was the use of TABE scores in the FY81 BSEP II files instead of ABLE scores. This meant that the files had to be analyzed separately in many cases.

Data documentation. The primary documentation for the BSEP I files was a copy of the coding sheets used and a set of instructions that accompanied the earlier form. In general, these were reasonably adequate. The only real problem was that for the later form two fields were combined into one (the AIT pass/fail field and the discharge status field) and we did not have full documentation of the codes used for the combined field. For the BSEP II files, the documentation was somewhat less complete. The BSEP IIA file (FY79 & 80) had been previously processed by TRASANA, where grade-equivalent ABLE scores were added along with a number of other variables that were not documented. The documentation supplied by DMDC was relatively complete, as was our documentation on the EMF. A major omission, however, was some information as to why fields such as the EER scores were missing in most cases.

Missing or erroneous values. Each of the files had a
significant number of missing values for key variables and
erroneous values for some other variables. The BSEP I data file,
in particular, appears not to have been edited very thoroughly.
This is inferred from the very low match rate to the DMDC files
(60% where close to 100% should have been obtained) and by the
fact that the SSN field had no check digits to facilitate
verification of the numbers entered.

Duplicate records. Each of the files processed contained
some cases with multiple records for the same SSN. In some
instances, an individual may have actually participated in two
different programs, but in a majority of cases, the records
appeared to be identical in all fields including installation and
date submitted.

One other problem that was perhaps unique to our effort was
the necessity of translating from ASCII files generated by UNIVAC
computers to the standard EBCDIC format used with IBM equipment.
In general, this was not a problem so long as an external ASCII
translation was used in generating the Univac files. In one
case, however, an internal "field" format was used and these
files proved to be virtually unreadable.

Review of Existing ESL Programs

Schedule of visits. A preliminary visit was made to Ft.
Dix in October 1981. Between December 1981 and March 1982,

two-person teams of ESL specialists from the American Institutes

for Research (AIR) made two or more visits to Forts Benning, Dix,

Gordon, Jackson, Knox, Sill, and Leonard Wood. These sites

include all posts with BSEP I/ESL programs that had more than 100

students during the three-year period covered by the TRADOC data

base (FY 79-81), and still had active BSEP I/ESL programs.

Data collection techniques. Both formal and informal

research techniques were used. The formal instruments were:

- questionnaires on background and
  attitude given to soldiers and
  teachers,

- oral proficiency interviews given as
  a pre-test to all soldiers entering the
  program during the first visit and
  as a post-test to the same soldiers
  five weeks later, and

- a structured observation form to describe
  the activities in the ESL classes.

In addition, staff collected ECLT scores from the soldiers'

records. Samples of curriculum materials and lesson plans were

also collected at each post to facilitate both the description of

the program and cross-program comparisons. Informal techniques

included:

- unstructured interviews, both in group
  sessions and individually, and

- unstructured observations during which
  the staff took field notes; these
  supplemented the information on the
  classroom observation forms.

Informal interviews with the soldiers were particularly important. When the written questionnaires were handed out the soldiers were assured that the information they wrote would be kept in confidence and not shown to their drill sergeants, but many of them were still reluctant to put their concerns in writing. When the staff spoke to them informally in Spanish after they had completed the questionnaires, they expressed themselves openly on a range of issues.

Considerations in the data collection. Using several approaches to obtaining data provided a more comprehensive view than could have been obtained from any one source alone. It also allowed for verification of the data. Confidence in the qualitative data grows as the same information is obtained from multiple sources.

Several aspects of the approach were particularly useful in building comprehensive and accurate descriptions. These included

- being open and non-judgmental,

- spending sufficient time on each post
  to speak to all interested parties and
  to observe full days of ESL classes,

- returning to each post five weeks after
  the initial visit,

- interviewing a wide range of individuals
  in a range of settings, and

- working in cross-gender and cross-language
  teams.

FINDINGS

The Program

In the introduction to this report we described BSEP as a
decentralized and heterogeneous program. Within the context of
U.S. Army training programs, this characterization is certainly
accurate; with other frames of reference, it would not be. BSEP
is more centralized and offers a more homogeneous approach than
the U.S. public school system, for example. But the typical
training program in the Army is far more standardized than is
BSEP. In the description of the programs that were observed, we
note the commonalities as well as the variations.

The instructional staff for BSEP is civilian and
predominantly female. Some instructors are employed under
individual non-personal services contracts. The majority are
employed by educational institutions that have institutioanl
contracts with a site or a MACOM. The individual contract is
more common for BSEP I than for BSEP II.

Most programs are offered during on-duty hours. In BSEP I,
programs tend to be full-time, five days per week for six weeks;
exit is possible after three weeks if the 5.0 grade level is
reached in vocabulary, reading, spelling, arithmetic
comprehension, and arithmetic problem solving. In BSEP II, the
programs tend to be on-duty, half-day programs of eight to twelve
weeks duration. In USAREUR, however, the standard program is 20
hours of instruction per week for three weeks.

The instructional materials used vary widely. Most often, some combination of commercially available and locally developed materials are employed; the local instructional staff generally has considerable discretion in the selection of materials. Where an institutional contractor is responsible for the program, a more uniform set of materials is likely to be used by all teachers. In spite of the considerable diversity in instructional materials, they all tend to be arranged in some type of "modular" scheme. A modular arrangement permits the instructor to make individual assignments in response to the varying abilities and deficiencies likely to be found in a BSEP class. Much of the classroom time is spent in individual, self-paced activity, with the instructor monitoring the activities and working with individual soldiers in one-on-one consultations.

The program goals that are emphasized also vary from one site to another and are reported to vary from one time period to another at the same installation. The differing emphases may reflect the wishes of the local commander and/or the educational goals believed important by an institutional contractor. Raising GT scores was a goal at most installations, to help soldiers meet requirements for MOS reclassification and/or reenlistment eligibility. Some programs emphasized obtaining a high school diploma or G.E.D. certificate. Improvement of the soldier's job performance in the short term was seldom offered as an objective.

Documentation Review

The earliest systematic review of data was that presented by TRADOC in its 1980 evaluation report on BSEP I. The results and conclusions included in the TRADOC report (roughly for the period October 1978 through November 1979), were compared to those obtained through AIR analyses of data for FY79-81 on the TRADOC BSEP I data tape. A summary of these findings is reported below.

Summary. The TRADOC evaluation effort and report included the collection, analysis, and interpretation of objective data and of qualitative data collected from TRADOC training installation commanders involved in conducting BSEP I programs. The specific evaluative conclusions and statements are included separately for commanders' comments and statistical evaluations. The overall conclusions in the TRADOC report, presented below, were based on some combination of both data sources. The AIR analyses concerned only statistical data.

1. <u>Less than 10% of BSEP I eligibles are from mental categories I and II of the AFQT</u>. The AIR analyses did not address this issue.

2. <u>SelectABLE is a reasonably valid predictor of difficulty with reading/math during initial entry training</u>. The TRADOC report contained no objective data that would either confirm or refute this conclusion. The AIR analyses did confirm that scores on the SelectABLE were positively related to successful completion of AIT, as shown in Table 1 below. There is no question that those scoring above 18 on SelectABLE are more likely to complete AIT. But there is no direct evidence that AIT attrition is related to difficulty with reading and math. For the 10,605 soldiers who scored below 18, those enrolled in BSEP I were <u>less</u> likely to complete

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AIT than the not-enrolled group. The data are
presented in Table 2.

Table 1
SelectABLE Scores and AIT Completion

Score	N	% Completing AIT
0-18	10,605	75.9
19 and above	59,432	88.6

t = 35.57, p < .001

Table 2
BSEP I Enrollment and AIT Completion
SelecTABLE Scores Below 18

	N	% Completing AIT
Enrolled	3,888	73.4
Not Enrolled	6,717	77.3

t = 4.52, p < .001

3. The SelectABLE score of 19 did not identify all
   those who may have a need for BSEP I instruction.
   The statement is true as it stands; no test will
   identify everyone who may need a particular pro-
   gram. But the objective data are not relevant to
   the finding; it may be that commanders' comments
   are the source of the statement. The objective
   facts are that some soldiers who score below 19
   complete AIT (with or without BSEP) while some who
   score above 19 fail to complete.

4. Tracking procedures may not have accurately
   identified the relationship between grade level
   and attrition in initial entry training. This
   statement is true of the period covered in the

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TRADOC report. The tracking base was expanded
at a later time. The AIR analyses did not include
grade level analyses per se. The analysis
reported in Table 1 above show that SelectABLE
scores (which are related to grade level) are re-
lated to completion of AIT.

5. BSEP I-ESL is an effective preparation for
   initial entry training. The AIR results (that
   will be reported in detail in the section on
   analyses of archival data) are in essential
   agreement with the TRADOC conclusion. ESL en-
   rollees consistently show lower attrition in
   AIT than do eligible non-enrollees.

6. BSEP I, to be fully effective, must be more
   specifically related to the MOS in which the
   enlistee is to be trained. No objective data
   are reported and none exist at the present that
   can be used to either confirm or refute this
   conclusion.

7. A comparison of BSEP I data and MILPERCEN
   records is needed to determine effects of
   BSEP I on first-term attrition. The TRADOC
   BSEP I data base carries a soldier only through
   completion of AIT. AIR's analyses of archival
   data addressed the first-term attrition issue;
   these data will be reported fully in a later
   section. The summary statement is that BSEP en-
   rollment is associated with small but statistically
   significant reductions in attrition during the
   first enlistment.

While there are some differences in the data derived from
the AIR analyses and that reported in the statistical evaluation
sections of the TRADOC report, there is no reason to dispute the
reported findings.

Analyses of Archival Data

BSEP I literacy. The first question addressed is the extent
to which soldiers who are eligible for BSEP I literacy programs
are enrolled in the program. With eligibility defined as a

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SelectABLE score of 18 or lower, the results are shown in Table 3.

Table 3
Eligibility and Enrollment in BSEP I (Literacy)

	Eligible	Enrolled	Percent Enrolled
FY 79-80	7,464	2,594	34.8
FY 81	3,141	1,294	41.2
Total	10,605	3,888	36.7

The 10,605 eligibles shown in Table 3 are, of course, the same soldiers who appeared in Tables 1 and 2 in the preceding section. We saw there that the 3,888 enrollees had a higher attrition rate in AIT (26.6%) than did the 6,717 eligible non-enrollees (22.7%). We also saw that the non-eligibles (those scoring above 18 on SelectABLE) had about half as much attrition in AIT (11.4%) as did the eligibles. What are we to make of these findings?

First, if there were doubt as to whether a problem existed for which BSEP might be a solution, those doubts must be dispelled. The very high loss rate in AIT for soldiers scoring below the 19 cut-off on SelectABLE is evidence of a serious problem that <u>must</u> be addressed in some way. Second, it is not possible to "evaluate," from archival data, the extent to which the existing BSEP alleviated the problem. From the gross attrition rates, one might conclude that the program hurt, rather than helped, the soldier's chances of completing AIT

successfully, but such a conclusion makes no sense at all. It is difficult to imagine how one might go about designing a remedial program that would make the student less competent in the skill areas being remediated; it is inconceivable that the Army inadvertently designed such a program while attempting to design one that would improve basic skills. The answer to the puzzle must be elsewhere.

It must be understood that there is no magic that can be applied to the archival data bases that will produce a clear-cut answer; all that we can do is to "think about" the findings and construct an explanation that, if true, would be consistent with the evidence. Two such rational constructions seem plausible to us; some readers may think of others. The first rationale is that assignment to BSEP is seen by some enrollees as evidence that the Army views them as incompetent. Since many of these youth have experienced failure in civilian school settings, being sent to the Army school house may reinforce the belief that they also will fail in the Army. And 26.6% of them do fail. A second construction focuses on the differences between enrolled and non-enrolled eligibles. Since the latter group comprises well over half of all eligibles, it is obvious that enrollment is not an automatic response to a SelectABLE score below 19. If assignment to BSEP is a non-random process that incorporates the judgment (of an NCO or a counselor) that a particular soldier "needs BSEP," then the enrolled group might be significantly lower in true ability than the non-enrolled group. The fact that

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nearly 23% of the non-enrolled group fail to complete AIT would indicate only that the assign/not-assign judgments are less than perfectly valid. We will have more to say about this line of reasoning later in this report.

A final question addressed by the archival analyses is the extent to which the BSEP I literacy programs increased the grade level scores on ABLE I Tests. The average gains are shown in Table 4.

Table 4
Mean Grade Level Gains as Measured by ABLE I Tests
for Participants in BSEP I, 6-Week Literacy Programs

	N	Reading	Vocabulary	Spelling	Arithmetic Computation	Arithmetic Problems
A11						
FY 1979	1,399	0.17	0.26	1.11	0.55	0.42
FY 1980	1,883	0.16	0.19	1.53	0.57	0.46
FY 1981	1,062	0.17	0.26	1.60	0.62	0.51
Total	4,344	0.17	0.23	1.44	0.58	0.46

It is clear from these data that modest average gains were realized in all five areas, with spelling and arithmetic showing larger improvement than reading and vocabulary. While the gains are not sufficient to move all enrolled soldiers to the 5.0 level, the Table 4 data reveal a clear treatment effect. The "expected" gains over a 6-week period for youth enrolled in public schools are in the range of .06 to .12 grade levels and the BSEP program clearly exceeds this. The gains shown are averages for all enrollees; some individuals gain more and some

gain less. As one would expect, soldiers who enter with very low grade level scores show greater gains than those entering at higher levels; this is shown in Table 5. These data reflect, in part, the regression artifact;* they are also influenced at the higher levels by ceiling effects on the ABLE test. But if we ignore the extremes and focus on those enrollees who are not affected by either artifact (those entering with grade level scores of 3 and 4), we see that the gains are quite respectable, averaging slightly more than 1.1 grade levels across the five subject matter areas.

Table 5
Gains in BSEP I as a Function of Entry Level

Entry Level	Reading	Vocabulary	Spelling	Arithmetic Computation	Arithmetic Problems
Grade 1	1.14	2.16	1.22	3.89	2.21
Grade 2	1.14	1.45	1.69	2.45	1.46
Grade 3	0.86	1.07	1.97	1.54	1.11
Grade 4	0.55	0.60	1.60	0.99	0.74
Grade 5	−0.01	−0.08	0.37	0.71	0.30
Grade 6	−0.25	−0.22	−0.14	−0.18	−0.22

BSEP I ESL. As in the case of literacy, our analysis begins with the extent to which ESL-eligibles are enrolled in ESL programs. Table 6 presents the results with eligibility defined as a score below 70 on the ECLT.

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*The regression effect refers to the fact that on any test, the very low scores are likely to be underestimates of the average true score while very high scores overestimate, on the average, the true score. On any re-test, with or without an intervening treatment, these groups will earn scores that are "regressed" toward the true score, e.g., the lowest group will show "gains" while the highest group will show "losses," due to the original errors of measurement.

Table 6
Eligibility and Enrollment in BSEP I (ESL)

	Eligible	Enrolled	Percent Enrolled
FY 79-80	2,970	1,840	62.0
FY 81	1,618	1,014	62.7
Total	4,588	2,854	62.2

The likelihood of being enrolled in an ESL course is greater for those scoring very low than for those scoring near the cut-off. Table 7 shows this relationship. As in the case of literacy programs, enrollment in BSEP-ESL is not automatic. While eligibility is defined by a score on the ECLT, actual assignment to the program is based on the score plus someone's judgment that the soldier "needs ESL." Table 7 shows that this judgment is made more frequently for low scorers than for those scoring higher.

Table 7
ESL Enrollment and ECLT Scores

	N	Enrolled	Percent Enrolled
ECLT 0-29			
FY 79-80	912	631	69.2
FY 81	495	354	71.5
ECLT 30-49			
FY 79-80	1,164	771	66.2
FY 81	624	414	66.3
ECLT 50-69			
FY 79-80	831	438	52.7
FY 81	499	246	49.3

Table 8 shows the relationship between enrollment in ESL and completion of AIT. The sample for Table 8 consists of all soldiers having a valid AIT completion (or failure) code on the TRADOC tape plus those re-cycles who had an earned MOS or discharge code on the DMDC files.* There is a small but significant difference in AIT completion for those soldiers who were enrolled in ESL. The difference is somewhat greater for soldiers scoring below 40 on the ECLT, as shown in Table 9. It is also evident that the overall failure rate is significantly higher for those scoring below 40. For those scoring above 40, the ESL-enrolled group has an attrition rate of 9.7% while the non-enrolled group has a rate of 10.5%; the difference is not statistically significant.

Table 8
ESL Enrollment and AIT Attrition

	N	Attrited	%
Enrolled	2,796	334	11.9
Not Enrolled	1,658	240	14.5

$t = 2.5$, $p < .02$

Table 9
ECLT < 40 and AIT Attrition

	N	Attrited	%
Enrolled	1,669	225	13.5
Not Enrolled	778	148	19.0

$t = 3.54$, $p < .01$

*The subsequent success/failure of recycles was not included on the TRADOC tape.

ESL programs consistently produce gains on the ECLT of about two points per week of instruction. Since many soldiers exit from the program in less than six weeks, the ECLT gain score for each soldier was divided by the number of weeks the soldier was enrolled. The results are shown in Table 10. More detailed information on gains as a function of entry level (ECLT score) and weeks of instruction are presented in the Appendix (see Tables A-1 to A-6).

Table 10
ECLT Gain by Weeks of Instruction

	N	Mean Entry Score	Gain Per Week
FY 79-80	1,847	37.5	2.5
FY 81	1,034	38.5	2.2

From all available evidence, we conclude that BSEP ESL programs are equally effective throughout the range of ECLT entry scores. Very low scorers appear to make greater gains than high scorers, but these apparent gains are clearly attributable, in part, to the regression effect. The best estimate across all programs and all score levels is an increase of two points on the ECLT for each week of ESL instruction.

BSEP-II literacy. We noted in our introduction that BSEP II involves many more soldiers than does BSEP I. Summary reports of ACES show BSEP II to have four to five times as many participants as BSEP I. Unfortunately, the data available for analysis do not

reflect this fact; individual participation is grossly under reported. Summary data for FY81 showed some 73,000 soldiers participating in BSEP II; individual reports (DA Form 1821,1a) were received on some 8,000 cases. Some MACOMS do not complete (or do not send) individual reports at all; USAREUR is absent in FY78-80 and seriously underrepresented in other years; Korea is adequately represented only in the FY78-80 data set. Overall, the available data appear to represent no more than a five percent sample over the FY78 to FY82 time period. The results we will report must be interpreted very cautiously since there is no evidence at all concerning the representativeness of the available sample. Under-reporting has become more serious in recent years; reports averaged 13,000 per year from FY78 to FY80, declined to 8,000 in FY81 and to fewer than 5,000 in FY82. Participation in BSEP II ESL is reported so infrequently (12 cases in FY 82) that we can report no results for the ESL program.

In terms of participation rates, our very incomplete data suggest that about 70% of eligibles are actually enrolled; the data

are shown in Table 11. For this data set, the principal reasons for referral to BSEP were:

- GT score less than 90   (40%)
- voluntary, self referral   (38%)
- command   (20%)

TABLE 11
Participation Rates in BSEP II Among Reported BSEP II Eligibles

	Between FY78 and FY80		FY81		FY82	
	N	Percentage	N	Percentage	N	Percentage
Participants	27,860	69.5	5,633	70.2	2,622	62.8
Eligible Nonparticipants	12,233	30.5	2,388	29.8	1,554	37.2
TOTAL	40,093	100.00	8,021	100.0	4,176	100.0

Table 12 and 13 show the entry grade levels for tested variables for all reported BSEP II eligibles. The average entry grade levels for FY81 and FY82 were almost identical. They ranged from a low of 6.96 for Language Mechanics-Expression to a high of 8.37 for Reading Comprehension. These grade levels were higher than for similar variables in the FY78-80 period which were based on ABLE rather than TABE grade level norms. For all years, grade levels for reading skills were higher than for mathematic skills. Language expression and spelling scores were the lowest.

Table 14 and 15 show the exit grade levels for tested variables for all BSEP II participants. The average exit grade level for all variables exceeded the entry grade level for the same variable. The difference was greatest for mathematics

TABLE 12

**Percentage of BSEP II Eligibles Achieving Selected Grade
Levels on the Five ABLE II (Form A) Pre-Tests
Between FY78 and FY80**

ABLE II Pre-Tests	Percentages Within Grade Levels								Grade Level Mean	Grade Level S.D.	N
	Below 3.00	3.00 3.99	4.00 4.99	5.00 5.99	6.00 6.99	7.00 7.99	8.00 8.99	9.00 +			
Vocabulary	0.6	2.5	4.7	9.3	8.6	7.8	9.1	57.4	7.9	1.6	34.377
Reading	1.6	2.3	3.0	4.5	5.4	14.7	21.7	46.7	8.0	1.5	36.116
Spelling	—	12.1	25.0	26.1	12.2	9.1	6.2	9.4	5.7	1.7	27.340
Computation	0.5	3.9	11.5	27.3	31.9	18.5	4.5	2.0	6.1	1.3	35.915
Problem Solving	3.9	5.2	7.5	19.5	10.0	25.6	6.2	22.1	6.7	1.8	35.662

TABLE 13

Percentage of BSEP II Eligibles Achieving Selected Grade Levels on the Six TABE Pre-Tests

TABE TEST	Percentages Within Grade Levels							Grade Level Mean	Grade Level S.D.	N
	3.00 3.99	4.00 4.99	5.00 5.99	6.00 6.99	7.00 7.99	8.00 8.99	9.00 +			
Reading Vocabulary										
FY81	1.3	1.9	9.6	13.5	20.6	16.9	36.0	8.30	2.07	7,096
FY82	1.2	2.0	8.8	13.3	21.7	18.7	34.3	8.28	2.00	3,823
Reading Comprehension										
FY81	1.3	2.0	10.9	7.0	19.2	18.5	41.2	8.37	1.95	7,113
FY82	1.1	1.3	11.2	7.3	20.4	17.9	40.8	8.34	1.89	3,806
Reading Total										
FY81	.8	1.5	8.9	12.9	19.0	20.1	36.8	8.27	1.87	7,063
FY82	.9	1.0	8.6	12.9	20.7	20.3	35.7	8.25	1.80	3,795
Language-Mechanical Exp.										
FY81	4.2	7.1	22.4	16.9	20.3	14.2	14.9	6.96	1.92	6,772
FY82	3.5	6.2	22.0	17.4	20.8	14.5	15.6	7.00	1.90	3,347
Language-Spelling										
FY81	4.8	7.3	24.5	8.8	16.3	14.2	24.2	7.27	2.31	6,801
FY82	4.5	7.5	22.7	8.2	17.0	15.3	24.7	7.34	2.28	3,334
Mathematics-Computation										
FY81	4	2.2	15.6	25.2	28.0	16.0	12.7	7.25	1.52	7,111
FY82	4	1.5	14.4	24.8	29.1	16.9	12.9	7.30	1.48	3,852
Mathematics-Concepts and Problems										
FY81	9	2.3	13.9	16.3	29.6	23.4	13.6	7.51	1.58	7,130
FY82	9	1.6	13.6	15.9	29.5	25.1	13.5	7.56	1.53	3,867

TABLE 14

Percentage of BSEP II Participants Achieving Selected Grade Levels on the Five ABLE II (Form B) Post-Tests Between FY78 and FY80

ABLE II Post-Tests	Percentages Within Grade Levels								Grade Level Mean	Grade Level S.D.	N
	Below 3.00	3.00 3.99	4.00 4.99	5.00 5.99	6.00 6.99	7.00 7.99	8.00 8.99	9.00 +			
Vocabulary	0.6	0.8	2.5	4.3	11.9	21.5	24.4	34.2	7.9	1.3	13,786
Reading	1.0	1.4	1.9	4.5	10.4	14.2	21.2	45.4	8.0	1.4	14,154
Spelling	—	6.2	10.6	14.2	14.2	11.4	8.4	34.9	7.0	1.9	15,265
Computation	0.5	1.7	4.9	7.4	20.2	10.6	11.9	42.8	7.7	1.5	17,307
Problem Solving	0.9	2.5	2.8	8.7	14.1	17.2	17.4	36.4	7.7	1.5	16,477

TABLE 15

Percentage of BSEP II Participants Achieving Selected Grade Levels on the Six TABE Post-Tests

TABE TEST	Percentages Within Grade Levels							Grade Level Mean	Grade Level S.D.	N
	3.00 3.99	4.00 4.99	5.00 5.99	6.00 6.99	7.00 7.99	8.00 8.99	9.00 +			
Reading Vocabulary										
FY81	.6	1.2	5.1	8.1	18.5	16.9	49.7	8.72	1.81	3,561
FY82	1.2	2.0	4.9	7.3	20.2	17.8	46.6	8.49	1.67	1,484
Reading Comprehension										
FY81	.5	1.4	6.9	7.3	15.1	17.8	51.1	8.77	1.81	3,445
FY82	1.0	1.6	6.8	8.2	15.0	19.8	47.6	8.57	1.72	1,396
Reading Total										
FY81	.2	.8	5.0	10.6	16.5	18.1	48.7	8.70	1.70	3,340
FY82	.7	1.2	6.2	9.3	21.4	19.7	41.5	8.42	1.61	1,307
Language-Mechanical Expression										
FY81	1.3	3.6	11.0	13.5	17.8	16.2	36.6	8.08	2.03	3,754
FY82	1.3	2.8	10.6	11.2	17.8	18.0	38.4	8.13	1.84	1,598
Mathematics-Computation										
FY81	0.0	.2	3.4	7.5	13.4	15.8	59.7	9.25	1.86	3,976
FY82	.1	.5	3.3	6.1	12.8	14.6	62.6	9.19	1.71	1,709
Mathematics-Concepts and Problems										
FY81	.3	1.3	6.0	7.8	21.3	25.5	37.8	8.49	1.73	3,975
FY82	.4	.8	5.9	6.4	20.1	28.9	37.5	8.49	1.58	1,725

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computation, concepts and problem solving, and language
expression all of which had the lowest entry levels. The exit
grade levels for FY81 and FY82 variables were higher than for
similar variables for the FY78-80 period which were based on ABLE
rather than TABE norms.

Table 16 shows that average grade level gains during FY78-80
achieved by BSEP II participants were: .53 for vocabulary
(average BSEP I gain of .26); .53 for reading (.17 for BSEP I);
1.30 for spelling (1.11 for BSEP I); 1.65 for arithmetic
computation (.55 for BSEP I); and 1.21 for arithmetic problem
solving (.42 for BSEP I). In terms of comparable grade level
gains, BSEP II achieved uniformly higher gains than did BSEP I.
Average grade level gains for FY81 and FY82 for participants who
successfully completed BSEP II are shown in Table 17. For both
tests and over all years, gains were greatest for mathematics
computation.

The percent of participants reaching criterion level was
greatest in FY81, about twice that of the FY79-80 period, with a
slight drop off in FY82 accounted for by voluntary withdrawals.
(See Table 18). While the mean exit grade level did not reach
the 9.0 level except for mathematics computation in FY81 and
FY82, in all years between one-third to two-thirds of the
participants achieved the 9.0 level in one or more tested
variables. The percent of soldiers completing the course but not
reaching criterion level remained about the same for the entire

TABLE 16

Average Grade Level Gains Between Pre-Tests and Post-Tests for the Five ABLE II Tests Among Participants Completing BSEP II Between FY78 and FY80[1]

ABLE Test	Mean[2] Gain	Standard Deviation	N
Vocabulary	0.53	0.96	9,573
Reading	0.53	1.00	10,118
Spelling	1.30	1.26	9,180
Computation	1.65	1.13	12,219
Problem Solving	1.21	1.32	11,561

[1] These figures are based on those who took different forms of the ABLE before and after BSEP instruction; in addition, only those coded as "successful graduates" or as having "completed instruction" under the termination code categories are included in the above figures. Consequently, the N's for each test are smaller than the N's reported elsewhere.

[2] In computing the average gains, negative gains are treated as zero.

TABLE 17

Average Grade Level Gains Between Pre-Test and Post-Test for the TABE Tests for Successful Graduates of BSEP II

TABE Test	Mean Gain		Standard Deviation		N	
	FY81	FY82	FY81	FY82	FY81	FY82
Reading Vocabulary	.90	1.05	1.46	1.37	3,386	1,376
Reading Comprehension	.77	.93	1.60	1.61	3,268	1,307
Reading Total	.86	.98	1.23	1.22	3,156	1,223
Language Mechanical Expression	1.45	1.51	1.72	1.60	3,536	1,459
Mathematics-Computation	2.14	2.15	1.58	1.51	3,780	1,568
Mathematics-Concepts	1.11	1.17	1.45	1.37	3,772	1,585
Total Mathematics	1.69	1.70	1.26	1.17	3,663	1,480

TABLE 18

Termination Codes Among BSEP II Participants

Termination Code	N			Percentage		
	FY78-80	FY81	FY82	FY78-80	FY81	FY82
Successful graduate	3,159	938	469	12.1	25.3	20.9
Voluntary withdrawal	3,033	178	204	11.6	4.8	9.1
Withdrawn by unit (mission related)	3,759	176	69	14.4	4.8	3.1
Dismissed for disciplinary reasons	376	72	10	1.4	1.9	.4
Completed instruction[1]	11,555	1,451	834	44.4	39.2	37.1
Other	4,163	890	661	16.0	24.0	29.4
TOTAL	26,045	3,705	2,247	100.0	100.0	100.0

[1] The category, "completed instruction," refers to those completing instruction who failed to attain a ninth grade level on each of the five ABLE post-tests (FY78-80) or each of the TABE post-tests (FY81/FY82).

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period. It should be noted that these "non-graduates" had average gains comparable to those of the graduates. The non-graduates just started lower. Additional instructional hours would permit most of these soldiers to reach the 9.0 level.

Tables 19, 20, and 21 present the entry level GT scores of BSEP II eligibles, the exit level GT scores for BSEP II participants and the average gain in GT score reported for BSEP II participants. Average exit GT scores are almost identical for the entire period. BSEP II programs have consistently shown raw gains of about 17 points in GT scores. But this gain cannot be treated as a "program effect" for two important reasons.

The first reason is the regression artifact noted in an earlier section of this report. Since the BSEP II population includes many soldiers who scored very low on the ASVAB when they entered the service, one would expect some "gains" upon retest, even with no intervening treatment. That raw gains are related to the entry level GT is shown clearly in Table 22, where the raw gain scores for soldiers entering with GT scores at or below 80 average almost 30 points. A better estimate of gain is based on the subset of BSEP II participants who scored within one-half standard deviation of the mean on initial testing (GT from 90 to 110). For the 789 soldiers within this range, the average gain was 13.1 GT points. For the subset of 133 soldiers scoring between the mean and +.5 standard deviations, the mean gain was 10.8 GT points. It is entirely justified to claim that a real

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TABLE 19

Original GT Scores of BSEP II Eligibles

GT Score	FY78-FY80			FY81			FY82		
	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage
Below 70	758	2.0	2.0	80	1.2	1.2	53	1.5	1.5
70-74	1,280	3.3	5.3	194	2.9	4.1	146	4.2	5.7
75-79	1,668	4.3	9.6	240	3.6	7.7	277	8.0	13.7
80-84	6,898	17.8	27.3	990	14.8	22.5	608	17.4	31.1
85-89	7,420	19.1	46.5	1,164	17.5	40.0	702	20.2	51.3
90-94	6,937	17.9	64.4	1,331	20.0	60.0	599	17.2	68.5
95-99	5,942	15.3	79.7	1,229	18.4	78.4	518	14.8	83.3
100-104	2,748	7.1	86.8	565	8.5	86.9	225	6.5	89.8
105-109	2,616	6.7	93.5	484	7.3	94.1	214	6.2	96.0
110-114	1,263	3.3	96.8	191	2.9	97.0	73	2.0	98.0
115-119	645	1.7	98.5	126	1.9	98.9	41	1.2	99.2
120+	598	1.5	100.0	76	1.1	100.0	27	8	100.0
TOTAL	38,773			6,670			3,483		
Mean	91.61			92.58			90.18		
Median	90.04			92.51			84.68		
Standard Deviation	11.40			10.80			10.77		

TABLE 20

GT Retest Scores for BSEP II Participants

GT Score	FY78-FY80			FY81			FY82		
	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage
Below 70	61	0.9	0.9	14	.9	.9	3	.5	.5
70-74	75	1.1	2.0	18	1.1	2.0	4	.6	1.1
75-79	48	0.7	2.7	22	1.4	3.4	7	1.0	2.1
80-84	319	4.7	7.3	50	3.1	6.5	15	2.3	4.4
85-89	309	4.5	11.8	70	4.3	10.8	26	4.0	8.4
90-94	638	9.3	21.1	138	8.6	19.4	57	8.7	17.1
95-99	1,018	14.8	36.0	225	14.0	33.4	80	12.2	29.3
100-104	718	10.5	46.5	178	11.0	44.4	104	15.8	45.1
105-109	1,108	16.2	62.6	250	15.5	59.9	121	18.5	63.6
110-114	814	11.9	74.5	210	13.1	73.0	94	14.3	77.9
115-119	686	10.0	84.5	222	13.8	86.8	80	12.2	90.1
120 +	1,064	15.5	100.0	213	13.2	100.0	65	9.9	100.0
TOTAL	6,858			1,610			656		
Mean	105.52			105.65			105.70		
Median	106.34			106.80			106.32		
Standard Deviation	13.91			13.34			12.11		

TABLE 21

Gains in GT Scores by BSEP II Participants

GT Score	FY78-FY80			FY81			FY82		
	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage	N	Percentage	Cumulative Percentage
0	674	9.9	9.9	120	8.7	8.7	47	7.3	7.3
1-5	523	7.7	17.6	96	7.0	15.7	46	7.1	14.4
6-10	871	12.8	30.4	179	13.0	28.7	78	12.1	26.5
11-15	1,016	14.9	45.3	220	16.0	44.7	106	16.4	42.9
16-20	1,047	15.4	60.7	239	17.4	62.1	100	15.5	58.4
21-25	894	13.1	73.8	182	13.2	75.3	105	16.3	74.7
26-30	687	10.1	83.9	139	10.1	85.4	72	11.2	85.9
31-35	474	7.0	90.9	89	6.5	91.9	48	7.4	93.9
36-40	299	4.4	95.2	50	3.6	95.5	17	2.7	96.0
41 +	324	4.8	100.0	62	4.5	100.0	26	4.0	100.0
TOTAL	6,809			1,376			645		
Mean	17.47			17.30			17.80		
Median	17.10			16.53			17.27		
Standard Deviation	13.50			13.34			12.89		

gain of more than one-half standard deviation on the GT scale is
present in these data.

TABLE 22

General Technical Composites for BSEP II Participants FY 1981-82

ENTRY GT LEVEL	EXIT GT LEVEL						
	Total	Below 81	81-90	91-100	101-110	111-120	Above 120	Mean Gain
Below 81	335	28	45	97	88	50	27	29.6
81-90	865	29	78	214	286	190	68	18.0
91-100	656	9	17	109	211	218	92	13.6
101-110	133	1	2	4	18	70	88	10.8
111-120	14	0	0	0	3	6	5	2.4
Total	2003	67	142	424	606	534	230	

Aggregate mean entry level calculated from raw data = 88.97
Aggregate mean exit level calculated from raw data = 106.46
Aggregate mean gain = 17.49

But we cannot claim that this half standard deviation gain
is a BSEP II program effect. We do not know what GT score would
have been earned by these soldiers had they been tested on the
ASVAB upon entry into BSEP II. Our best guess is that those
entry scores would have been higher than the original pre-service
scores upon which our gains are based. An appreciable period of
time separates our pre- and post-scores, ranging from nine months
to two or more years. We cannot know how much of what kind of
learning occurred during that period, prior to entering BSEP II.
Available data cannot resolve the question. If it is to be
answered, a sample of BSEP eligibles must be given the ASVAB upon
entry into the program and then re-tested with another form upon
program completion.

THE STATUS OF BSEP: A SUMMARY AND SOME SUGGESTIONS

It is abundantly clear from the analyses that we have reported that the existing, capturable data base does not permit an "evaluation" of the overall BSEP program in any rigorous sense of the term. Some of the factors that constrain our ability to provide definitive answers to sensible questions can be remedied, in part, by the better data bases currently being developed under other ARI-sponsored projects. Other constraints could be overcome by mounting relatively small-scale, one-shot efforts. But some constraints--most notably, the absence of adequate comparison groups--can probably not be overcome in the Army environment. Before offering some comments and suggestions concerning the constraints, we will briefly summarize what we <u>have</u> leaned in the course of our review.

First, the problem for which BSEP is the intended solution is real. However trite that may appear, it is a fact to which attention must be paid. There are, and will continue to be, substantial numbers of soldiers with serious deficiencies in such basic skills as reading, listening, and computing. While the presumed causal arrow cannot be verified by existing data, there is no question that this skill-deficient subset contributes disproportionately to attrition rates during the first enlistment.

Second, despite the great diversity in BSEP I programs, the immediate objectives of the programs are attained. As measured by standardized tests such as ABLE and TABE, basic skills are improved during the six week literacy training program. In BSEP I ESL, gains on the ECLT are found consistently. In both the ESL and literacy programs, many soldiers fail to reach the specified level on the criterion test, but they do improve. The improvements appear to be orderly--especially in ESL--so that given a fixed program length one can estimate the entry level required to reach the specified exit level.

Third, the same case can be made for BSEP II: gains on ABLE or TABE are always found on the post-test. The case is a little weaker than for BSEP I because the time between pre- and post-test is more variable in BSEP II. This variability increases the possibility that some of the observed gain may be attributable to learning that occurred outside of the BSEP program. Nonetheless, we feel secure in attributing at least a portion of the observed gains in grade level to the program.

In regard to the gains on GT that are associated with BSEP II, the data cannot support their attribution to the program. We simply cannot know, given the many unknowns of the lengthy and variable period that separates the two administrations of the ASVAB. The BSEP II program occupies but a tiny portion of that period, and much GT-relevant learning may have occurred outside the program.

We can say almost nothing conclusively about BSEP effects on longer term performance. The only defensible analysis of such effects is one that involves a comparison of BSEP participants with a comparison group of eligible non-participants. We have come to believe that all such comparisons that can be made with the existing data are fundamentally flawed. Our belief rests on the simple assertion that non coms and junior officers make valid judgments about the men they train and supervise. When a platoon sergeant decides that Soldier A "needs BSEP" while Soldier B does not, his judgment is based on a large number of observations of job performance. Soldiers A and B may both have SelectABLE scores of 18, but Soldier B is learning his job while Soldier A is having all sorts of problems. There may be differences in motivation and commitment to the Army between the two. Whatever the differences are, a comparison group composed of soldiers like B will generally out perform the "treatment" group of the A's who need BSEP. The "eligible non-participant" group is not an adequate group for comparisons with BSEP participants.

Finally, the existing data base, in spite of its weaknesses, does provide a benchmark against which the new BSEP programs can be measured. We know that the old BSEP I ESL produced ECLT gains of between 1.7 and 2.0 points per week of instruction. We know that the old BSEP II literacy program produced gains of about 1.1 grade levels after six weeks of instruction.

There are several things that can be done to make better data available. Among the one-shot mini-studies that might be mounted, we would recommend the following:

- Re-administering the ASVAB to a small sample of BSEP II applicants (or referrals) at the start of the program, using an alternative form for the post-test. If we could vary the time between initial ASVAB and pre-test ASVAB (say at nine, twelve, eighteen months) we could get an estimate of the effect on GT of simply being in the Army. A total sample of two to three hundred soldiers would suffice.

- An alternative would be to select samples with regard to BSEP such as random, convenience, or soldiers with nine, twelve, eighteen months of service, and admininster two forms of the ASVAB six weeks apart.

- A modified random assignment procedure for BSEP. We recognize all of the arguments against random assignment in the real world; but there is a modification that might be acceptable: any soldier assigned to the non-treatment group could be re-assigned to the treatment group if it became evident to the trainees that he or she was not going to complete the training program successfully. If this could be done at one installation over a six-month period, the gain in our understanding of BSEP would be increased enormously.

- Test (TABE) and interview a small sample (N 50) of "eligible non-participants" upon completion of AIT or OSUT.

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APPENDIX

TABLE A-1

Percent Achieving Each ECL Level
by Initial ECL Level
(FY 79 and 80)

Initial ECL Level	N	ECL Level Achieved					
		< 40	40-49	50-59	60-69	70-79	80 +
< 30	634	63	16	11	6	3	1
30-39	461	37	27	22	9	4	1
40-49	313	12	15	27	29	16	1
50-59	213	4	5	19	37	31	4
60-69	226	2	2	3	19	60	15
Overall		34	16	16	16	16	3
(N)	(1847)	(619)	(289)	(298)	(290)	(291)	(60)

TABLE A-2

Percent Achieving Each ECL Level
by Initial ECL Level
(FY 81 Cohort)

Initial ECL Level	N	ECL Level Achieved					
		< 40	40-49	50-59	60-69	70-79	80 +
< 30	354	65	14	12	4	3	2
30-39	262	37	23	23	10	6	2
40-49	152	7	22	37	26	7	1
50-59	136	5	6	23	32	29	5
60-69	130	5	2	3	12	51	28
Overall		35	15	19	13	14	5
(N)	(1034)	(351)	(155)	(192)	(139)	(141)	(56)

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TABLE A-3

Distribution of Length of ESL Training*
by Initial ECL Level
(FY 79 and 80)

Initial ECL Level	N	Length of ESL Training						
		< 2 wk	2 wks	3 wks	4 wks	5 wks	6 wks	7 + wks
< 30	634	0	1	9	12	18	60	1
30-39	461	0	0	10	16	19	53	1
40-49	313	0	2	17	14	19	48	1
50-59	213	0	2	29	22	13	34	0
60-69	226	2	4	35	22	13	24	0
Overall		0	2	16	16	17	49	1
(N)	(1847)	(6)	(28)	(292)	(291)	(319)	(899)	(12)

* Figures shown are the percentage completing the indicated number of *full* weeks.

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TABLE A-4

Distribution of Length of ESL Training*
by Initial ECL Level
(FY 81 Cohort)

Initial ECL Level	N	Length of ESL Training						
		< 2 wk	2 wks	3 wks	4 wks	5 wks	6 wks	7+ wks
< 30	354	0	0	5	9	13	61	11
30-39	262	0	1	6	10	12	60	11
40-49	152	0	1	5	17	11	52	14
50-59	136	1	3	15	14	8	45	13
60-69	130	2	4	17	25	6	41	6
Overall		1	1	8	13	11	56	11
(N)	(1034)	(6)	(12)	(85)	(136)	(114)	(565)	(116)

* Figures shown are the percentage completing the indicated number of *full* weeks.

TABLE A-5

Percent Achieving Each ECL Level
by Number of Weeks of Instruction
(FY 79 and 80)

Full Weeks of Training	N	< 40	40-49	Final ECL Level 50-59	60-69	70-79	80 +
1	6	17	0	0	0	67	17
2	28	25	0	0	21	46	7
3	292	17	7	8	21	39	8
4	291	27	17	15	20	17	3
5	319	39	16	19	14	8	3
6	899	39	19	18	13	9	1
7	12	33	0	42	17	8	0
Overall		34	16	16	16	16	3
(N)	(1847)	(619)	(289)	(298)	(290)	(291)	(60)

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TABLE A-6

Percent Achieving Each ECL Level
by Number of Weeks of Instruction
(FY 81)

Full Weeks of Training	N	< 40	Final ECL Level 40-49	50-59	60-69	70-79	80 +
< 2	6	33	17	0	17	33	0
2	12	8	8	8	8	42	25
3	85	16	14	8	14	33	14
4	136	20	15	18	11	30	6
5	114	42	16	17	17	4	5
6	565	40	15	20	13	8	5
7 +	116	30	15	25	16	14	1
Overall		35	15	19	13	14	5
(N)	(1034)	(351)	(155)	(192)	(139)	(141)	(56)

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